Functional Foods: Consumer Attitudes, Perceptions, and Behaviors in a Growing Market

From health reform to the First Lady's Let's Move initiative tackling childhood obesity to the release of the 2010 Dietary Guidelines for Americans, nutrition and health are top issues among health professionals, policymakers, and consumers. Like never before, food and nutrition practitioners, including registered dietitians and dietetic technicians, registered, have been identified as critical to consumers' success in building healthful diets. And Americans are primed for actionable advice about improving their health through food and nutrition according to research from the International Food Information Council (IFIC).

Consumer interest in foods that provide health and wellness benefits, or functional foods, is thriving. Recent market data show that, even in a challenged economy, the market for functional foods and beverages has outpaced the growth of the total US food and beverage market by a wide margin. The US functional food market was valued at more than $37 billion in 2009, representing about 6% of the total food and beverage market (1). Availability of health-promoting foods and beverages in the marketplace allows many consumers to take charge of their health by making improvements to the overall healthfulness of their diet. Dietetics practitioners should keep pace with consumers by understanding their attitudes and behaviors related to foods that can promote health; staying informed of the scientific research behind certain functional components; and continuing to assist consumers as they include these foods in their diets.

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WHAT ARE FUNCTIONAL FOODS?

Although there is not a regulatory definition for "functional foods," these foods include a wide variety of foods and food components believed to improve overall health and well-being, reduce the risk of specific diseases, or minimize the effects of other health concerns. For example, these can include the inherently healthful components in fruits and vegetables; whole grains and fiber in certain breads and cereals and calcium in milk; fortified foods and beverages, such as vitamin D–fortified milk; and, in its broadest definition, functional foods can also include dietary supplements. In 2009, the American Dietetic Association (ADA) released a position paper where functional foods were similarly defined as foods that "provide additional health benefits that may reduce disease risk and/or promote optimal health" (2). ADA provided an exhaustive review of the regulatory status and the process of scientific substantiation for the category, yet factors driving the functional foods market and consumer attitudes and behaviors were addressed in less detail. This article highlights more than a decade of insights evaluating consumer attitudes toward foods and food components that can promote health and the factors that may be driving this growing market.

FUNCTIONAL FOODS IN A STRESSED ECONOMY

As the country continues to recover from one of the most challenging economic periods in decades, consumer interest in functional foods remains strong. The recession increased many consumers' commitment to health and wellness pursued through their purchase of functional foods. There are several explanations for the market's growth: the needs of an aging population, rising cost of health care, pervasive media attention to advances in food innovation and medical discovery, and expectations for higher prices (3).

The category's market success drives research in food innovation that is complemented by advances in medicine and understanding of chronic disease prevention and amelioration. Many multinational food, beverage, and agricultural companies have dedicated their growth strategies and research budgets to developing and marketing foods with benefits that promote health (4). All of this is fueled by consumer demographics expanding the demand for functional foods, especially among the boomer populations (5) and households with children (6).

In addition, the way that people obtain information has changed with the expansion of new, highly-targeted, and portable media. People can access information with ease and, in many cases, instantaneously. This allows for market segments to be defined in greater detail, which can encourage profitable pursuit of smaller, specialized markets, such as some functional food markets. This is exemplified by the themes of "wellness, potency, and efficacy" prevalent in many new food product successes (7).

CONSUMERS' CHANGING ATTITUDES AND BEHAVIOR TOWARD FUNCTIONAL FOODS

Just as it is critical to guide the development of functional foods based

on substantiated science, as endorsed by ADA's position paper and the academic community (8,9), it is equally important for health professionals and educators to understand consumers' perspectives regarding this diverse and growing market. Although founded in science, successful functional foods must resonate with consumer perceptions—foods with health benefits they understand and desire, delivered in products they trust (10).

This is a dynamic food category for consumers where their understanding of the nutrition and health relationships underwriting these foods is evolving, just as the science itself is advancing. The more medicinal or disease-focused approach is waning. Functional foods have continued to lead growth in the food industry during the recession (6,11). They have matured from an early, one-dimensional "food as medicine" concept to one that is more mindful and comprehensive in embracing health benefits of food in their lifestyle. The relevance of monitoring changes in consumer interest in functional foods intensifies as we move into an increasingly health- and wellness-focused society.

RESEARCHING CONSUMER PERCEPTIONS OF FUNCTIONAL FOODS

It is important to consider what consumers know today about foods and beverages that promote health and learn about the actions they are taking to make improvements to their diet. This understanding of consumer attitudes, perceptions, and behaviors can help food and health communicators tailor information that resonates with and motivates consumers to achieve optimal health through diet and lifestyle.

In 2009, the IFIC commissioned Cogent Research, LLC of Cambridge, MA, to field its sixth Functional Foods/Foods for Health Consumer Trending Survey to study Americans' awareness of and attitudes toward functional foods or foods and beverages that may provide benefits beyond basic nutrition (12). The survey has been conducted every 2 to 3 years since 1998 and provides ongoing consumer insights into their interests and perceptions about foods and beverages and the roles these have in promoting health and wellness.

The survey was fielded between May 11 and May 20, 2009, and included responses from 1,005 US adults 18 years and older. A sampling plan was developed to ensure that the respondent profile was representative of the US population on key demographics, including sex, age, region, education, and ethnicity. Targets were created using data from the US census. Following data collection, the data were weighed to correct for minor deviations from these census-based targets.

Statistical significance between subgroups in the study, including trended responses, was conducted using independent *t*-tests for means (equal variances) and independent Z-tests for percentages. Using these analytical tools, researchers may be 95% confident that noted differences are projectable to the US adult population. The sample of 1005 interviews is subject to a maximum sampling error of ±3.1 percentage points (at the 95% confidence level). Comparisons of data from 1998, 2000, 2002, 2005, and 2007 to 2009 are subject to a maximum sampling error of ±4.4 percentage points (at the 95% confidence level).

CONSUMER PERCEPTIONS OF THEIR DIET

Findings from another trending survey, the *International Food Information Council Foundation Food & Health Survey*, which has been conducted annually since 2006, shed light on how consumers view nutrition and health, their efforts to improve their diet, and their understanding of the various components of their diets more broadly. In 2011, more than one half of Americans (63%) describe their diet as either "somewhat healthful" (53%) or "extremely healthful" (10%), a significant increase from previous years (13).

Fifty-nine percent of Americans say they are attempting to make changes to improve the healthfulness of their diets in 2011 (13). Americans report making these changes in an effort to improve their overall well-being (65%), lose weight (56%), improve their physical health (56%), because of a specific health condition (32%), and/or maintain weight (20%). Of those that are seeking to improve the healthfulness of their diet, Americans say they are changing the types of foods and/or food components they eat (72%), changing the amount of food they eat (63%), changing how often they eat (47%), counting calories (22%), and changing their use of dietary supplements (18%).

CHARACTERISTICS OF CONSUMERS ACCEPTING FUNCTIONAL FOODS

According to the 2009 IFIC Functional Foods/Foods for Health Consumer Trending Survey, when asked about their perceptions of functional foods, significantly more consumers (89%) agree that certain foods have benefits that go beyond basic nutrition, and may reduce the risk of disease or other health concerns. This is more than the responses in 2007 (85%) (12). Significantly more consumers "strongly agree" that foods provide functional benefits (53%) than in 2007 (45%). Consumers most likely to "strongly agree" that certain foods have benefits beyond basic nutrition are those who report that their health status is "excellent" (71% vs 51% "good" and 44% "fair" or "poor"); dietary supplement users (58% vs 44% nonusers); those with a college education (60% vs 49% of those who have a high school degree or less and 53% of those who have some college); and those who are single (56% vs 47% of those who are married).

Americans remain highly interested in learning more about functional foods; 43% are "very interested" and another 41% are "somewhat interested." This high level of interest remains unchanged from previous years (12). Americans who are more likely to be "very interested" in learning more about functional foods are those who report their health as "excellent" (57% vs 51% of those who consider their health to be "very good," 40% "good," and 37% "fair" or "poor"); dietary supplement users (52% vs 28% nonusers); those who are single (52% vs 31% of those who are married); and women (49% vs 37% men).

CONSUMER AWARENESS OF FUNCTIONAL FOODS

Similar to 2007 and 2005 data, nine of 10 Americans are able to name, on an unaided basis, a specific food or food component and its associated health benefit (92% in 2009 and 2007 and 91%

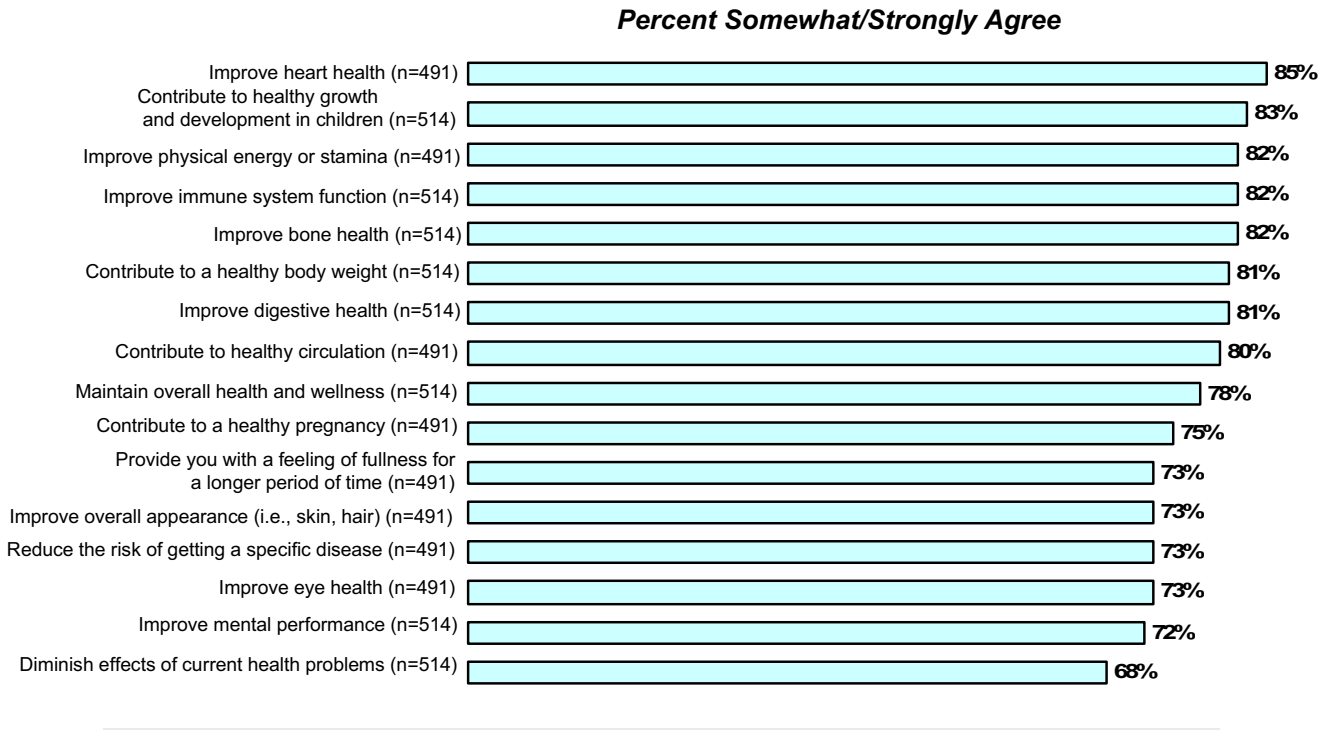

Figure. Perception of specific benefits from foods and beverages. Reprinted with permission from reference (12).

in 2005) (12). This represents a significant increase compared with 84% in 2002; 82% in 2000; and 77% in 1998. The top functional foods named by consumers (unaided) are: fruits and vegetables, fish/fish oil/seafood, dairy (including milk and yogurt), meat and poultry, herbs/spices, fiber, tea and green tea, nuts, whole grains and other grains, water, cereal, oats/oat bran/oatmeal, and vitamins/supplements.

When asked about the health benefits associated with the named foods, most Americans report (unaided): reduced risk of cardiovascular disease (34%) followed by digestive health (19%); vitamin deficiency (19%); general health (18%); bone health (14%); reduced risk of cancer (11%); eye health (11%); immune health (9%); and weight maintenance (6%) (12).

PERCEPTION OF AND INTEREST IN SPECIFIC BENEFITS FROM FOODS AND BEVERAGES

Consumer attitudes are very positive regarding foods and beverages with added health and wellness benefits. When asked whether they agree or disagree that foods and beverages can provide a wide array of specific health benefits (for example, heart health), between 68% and 85% of Americans either "somewhat" or "strongly believe" in the stated benefit (12) (see the Figure).

Furthermore, more than 85% of all Americans say they are currently consuming or would be interested in consuming foods or beverages for these specific benefits (12). Very few Americans indicate that they are not interested in consuming foods or beverages for the stated benefits.

Of the specific benefits explored in this survey, more than half of Americans currently report consuming foods or beverages for an "overall health and wellness" benefit (56%), a "heart health" benefit (55%), or to "contribute to a healthy body weight" (52%) (12). Generally, Americans who are more likely to be consuming foods and beverages for specific benefits are those who believe they have a "great" amount of control over their health; view their health status as "excellent"; are dietary supplement users; and are single.

AWARENESS AND CONSUMPTION OF CERTAIN FOOD COMPONENT/HEALTH BENEFIT PAIRS

Consumers were asked, on an aided basis, whether they are aware of certain food components, their corresponding food sources, and their associated health benefits. The most recognizable food/health associations continue to be those related to bone health, cardiovascular disease, cancer, and benefits associated with fiber (12).

Of the 27 food component/health benefit pairs tested, 17 significantly increased in awareness from 2007; the other 10 pairs remained relatively stable (12). Consumption of all food component/health benefit pairs tested remained stable. Awareness of specific food and health associations that significantly increased among consumers since 2007 include:

- calcium for promotion of bone health (93% vs 89%); vitamin D for

Table. Awareness and consumption of certain food component/health benefit pairs[a]

Diet and health relationship	Awareness of relationship[b]	Already consuming[c]	Likely or somewhat likely to consume[c]
Calcium, found, for example, in dairy foods, such as milk, cheese, or yogurt or in calcium-fortified foods or beverages, for the promotion of bone health (n=488)	93% (n=456)	58%	35%
Vitamin D, found, for example, in fortified foods and beverages, for the promotion of bone health (n=517)	90% (n=463)	56%	38%
Fiber, found, for example, in vegetables, fruits, and some fortified foods some breads, cereals, and fortified foods and beverages, for maintaining a healthy digestive system (n=517)	89% (n=460)	56%	38%
Fiber, found, for example, in vegetables, fruits, and some fortified foods, some breads, cereals, and fortified foods and beverages, for weight management and to provide a feeling of fullness (n=488)	88% (n=430)	50%	42%
Whole grains, found, for example, in whole grain cereals, breads, rice, or pasta, for reduced risk of heart disease (n=488)	83% (n=405)	50%	42%
Protein, found, for example, in meat, dairy, beans, nuts, soy, and some fortified foods and beverages, for maintaining optimal health (n=517)	83% (n=431)	56%	38%
n-3 fatty acids, found, for example, in seafood, fish oil, or fortified foods, for reduced risk of heart disease (n=517)	81% (n=417)	48%	42%
Antioxidants, found, for example, in fruits and vegetables, whole grains, dark chocolate, coffee, and certain teas, for protection against free radical damage implicated in aging and various chronic diseases (n=517)	81% (n=419)	54%	38%
Protein, found, for example, in meat, dairy, beans, nuts, soy, and some fortified foods and beverages, for weight management and to provide a feeling of fullness (n=517)	80% (n=415)	50%	42%
Fiber, found, for example, in vegetables, fruits, some breads, cereals, and fortified foods and beverages, for reduced risk of heart disease (n=517)	79% (n=408)	56%	38%
Fiber, found, for example, in vegetables, fruits, and some fortified foods, some breads, cereals, and fortified foods and beverages, for reduced risk of cancer (n=488)	78% (n=380)	54%	41%
Potassium, found, for example, in fruits, vegetables, and juices, for reduced risk of high blood pressure and stroke (n=488)	78% (n=382)	52%	41%
B vitamins, found, for example, in meats, whole grains, vegetables, and nuts, for reduced risk of heart disease (n=488)	78% (n=382)	52%	42%
Monounsaturated fats, found, for example, in olive oil and nuts, for reduced risk of heart disease (n=488)	73% (n=358)	49%	44%
n-3 fatty acids, found, for example, in seafood, fish oil, and fortified foods, for cognitive development, especially in children (n=488)	72% (n=352)	46%	42%
Probiotics, found, for example, in yogurt and other products fortified with beneficial cultures, for maintaining a healthy digestive system (n=517)	72% (n=373)	38%	47%
Probiotics, found, for example, in yogurt and other products fortified with beneficial cultures, for maintaining a healthy immune system (n=488)	71% (n=348)	41%	42%
Folate or folic acid, found, for example, in fortified grain products and citrus juices, for reduced risk of heart disease (n=488)	70% (n=341)	48%	44%
Folate or folic acid, found, for example, in fortified grain products and citrus juices, for reduced risk of brain or spinal cord birth defects (n=517)	61% (n=317)	37%	43%
Soy protein/soy, found, for example, in soy-based products, such as meat alternatives, nutritional bars, and beverages, such as soy milk, for reduced risk of heart disease (n=517)	61% (n=317)	25%	48%
Lycopene, found, for example, in processed tomato products, such as tomato sauce, for the reduced risk of prostate cancer (n=488)	61% (n=298)	52%	37%
Herbs and spices used to season foods, for example, cinnamon, red pepper, and oregano, for reduced risk of chronic diseases and/or weight management (n=488)	60% (n=292)	51%	41%
Prebiotic fiber, found, for example, in certain fruits and vegetables and fortified foods, for maintaining a healthy digestive system (n=517)	60% (n=311)	45%	47%
Lutein, found, for example, in spinach and fortified foods and beverages, for maintaining eye health (n=517)	59% (n=306)	44%	46%
Soy protein/soy, found, for example, in soy-based products, such as meat alternatives, nutritional bars, and beverages, such as soy milk, for reduced risk of cancer (n=488)	55% (n=267)	27%	47%
Plant sterols, found, for example, in fortified foods and beverages, including table spreads, juices, and yogurt, for reduced risk of heart disease (n=517)	45% (n=233)	36%	47%
Xylitol, found, for example, in sugar-free chewing gums, for maintaining good oral health (n=517)	35% (n=179)	38%	45%

[a]Reprinted with permission from reference (12).
[b]Question: For each of the following food components or nutrients, please tell us whether you are aware that that food component or nutrient is thought to be beneficial for the specified health condition (split sample).
[c](If aware) Please indicate how likely you are to begin eating each of the following food components or nutrients for the specified health condition in the next 12 months.

promotion of bone health (90% vs 81%);
- whole grains for reduced risk of heart disease (83% vs 72%);
- antioxidants for protection against free radical damage (81% vs 72%).
- potassium for reduced risk of heart disease and stroke (78% vs 64%);
- B vitamins for reduced risk of heart disease (78% vs 61%);
- monounsaturated fats for reduced risk of heart disease (73% vs 63%);
- omega-3 (n-3) fatty acids for cognitive development, especially in children (72% vs 53%);
- probiotics for maintaining a healthy digestive system (72% vs 58%);
- probiotics for maintaining a healthy immune system (71% vs 54%);
- folic acid for reduced risk of heart disease (70% vs 55%);
- lycopene for the reduced risk of prostate cancer (61% vs 49%);
- herbs and spices for reduced risk of chronic disease or weight management (60% vs 46%);
- prebiotic fiber for maintaining a healthy digestive system (60% vs 48%);
- lutein and other carotenoids for maintaining eye health (59% vs 52%);
- soy/soy protein for reduced risk of cancer (55% vs 47%); and
- plant sterols for reduced risk of heart disease (45% vs 30%).

Of those who are aware of various associations, between 25% and 60% of Americans are currently consuming specific foods/food components for related health benefits, and another 35% to 50% report they are "somewhat likely" or "very likely" to begin consuming foods/food components for the stated benefit (12). Americans' consumption of func-

tional foods or food components parallels their awareness of food/health associations. Generally, Americans who are more likely to consume foods and beverages for a specific benefit are those who believe they have a "great amount" of control over their health; those who report being in "excellent" health; are dietary supplement users; are single; and are 55 years and older compared with those 54 years and younger (see the Table).

KEY FINDINGS REGARDING CONSUMERS AND FUNCTIONAL FOODS OVER TIME

The majority of Americans continue to believe that they have some control over their health (91%), with food and nutrition identified as playing the greatest role in improving or maintaining health (72%), followed by exercise (62%), and family health history (39%) (12). Unaided, heart disease (48%), weight (31%), and cancer (24%) continue to be the top health concerns of Americans; diabetes (17%), nutrition (16%), and exercise (14%) follow as other important health concerns.

Since this research was first conducted in 1998, there has been a significant increase in consumer awareness of foods and beverages that may provide benefits beyond basic nutrition, and consumers continue to be very interested in learning more about these foods. The majority of Americans are interested in foods and beverages that can provide a host of benefits, from maintaining overall health and wellness to improving heart, bone, and digestive health, or contributing to a healthy body weight. Many Americans are consuming certain foods and food components for these and other health benefits, while even more report that they are interested in doing so (12).

As in previous years, consumers are able to identify foods that fall into broad categories such as dairy, fruits, or vitamin/supplements. Consumers more readily mention certain foods or food categories that contain healthful components rather than specific food components. For example, consumers may identify fruits and vegetables as having health benefits, but they may not be able to articulate the specific antioxidants, vitamins, or minerals as the healthful components they contain. Consumers are also most aware of food/health benefit associations related to their greatest health concerns of cardiovascular disease, weight maintenance, and cancer, as well as those that have been well-established and promoted over time, such as calcium for bone health (12).

When consumers are provided with key pieces of information, including a food component, corresponding food sources, and associated health benefit, there was a significant increase in consumer awareness of the majority of food and health pairs asked about in this survey (12). Although certain food and health relationships may not be top-of-mind for consumers, increased exposure to specific foods and beverages with beneficial health components

can serve to increase awareness and may result in higher consumption over time. Projected market growth in major functional food and beverage categories reflects increased consumer familiarity with these relationships (5).

Key findings from the IFIC Foundation Food & Health Survey found that healthfulness, among other product attributes, is an important factor that influences consumers' purchasing decisions (13). However, Americans report that taste is the most important factor when making foods and beverage selections, and price is becoming increasingly more important. Research in the functional dairy category draws similar conclusions, demonstrating narrowing consumer tolerance to compromise taste for health (14).

IMPLICATIONS FOR HEALTH PROFESSIONALS, EDUCATORS, AND COMMUNICATORS

Whether whole grains for heart health, calcium, or vitamin D for bone health, or protein for weight management, the majority of Americans believe in functional foods and remain interested in learning more about foods and beverages and their associated health benefits.

Market information indicates that consumers include functional foods among their food choices, even during difficult economic times. Demographic patterns, attention to health care, and more customized marketing approaches through the use of social media are likely to capture consumer interest in functional foods. A commitment to researching the health benefits and risks of functional foods, as well as strategies to communicate these findings to consumers and health professionals alike, will be important for continued growth.

Dietetics practitioners and other health professionals, educators, and communicators are well-positioned to help Americans build diets that bring them into compliance with current and future dietary guidance recommendations as well as reach other health goals. As many consumers struggle to achieve a healthful diet, manage their weight, and consume adequate amounts of key nutrients, reinforcement of educational messages regarding food and their health benefits can be effective to increase awareness. Personalized tips regarding incorporation of health-promoting foods will help consumers make improvements in their diet and health over time. Health professionals, educators, and communicators are wise to keep pace with the latest science and consumer understanding of functional foods and encourage conversations about these foods with their clients, patients, and colleagues.

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